## REMARKS

In response to the non-final Official Action of September 2, 2005, the preambles of independent claims 10, 14, 16 and 17 have been amended in a manner to overcome the objection to claims 10-18 as set forth at paragraph 1 of the Official Action.

Referring now to paragraph 3 of the Official Action, it is respectfully submitted that claims 1-18 are not anticipated by US patent 9,560,341, LeBlanc et al (hereinafter LeBlanc), or in view of EP 0869373, Chambers.

More particularly, LeBlanc is directed to a positioning system having an RF-measurements databank for use in a wireless communication system including a plurality of base stations each having a corresponding coverage area. As set forth in the Abstract thereof, scaled contour shapes are generated having minimum and maximum boundaries based upon determined RF measurements of each of the base stations. The intersections of the contour shapes define a bounding polygon area that describes the position of a mobile unit in terms of minimum and maximum error estimation.

It is mentioned in LeBlanc that GPS receivers are expensive, bulky and difficult to handle (see column 6, lines 41-51). Further, it states that signals from at least three to four satellites are required, which may not always be the case (see column 6, line 63 through column 7, line 6). Simply evaluating the signal strength of received signals in PCS or cellular systems for determining distance to a base station transmitting these signals has the disadvantage that the attenuation of such signals as a function of the distance to the base station varies; e.g., depending on the location and the season of the year (see column 7, lines 6-18).

Directed to these considerations LeBlanc proposes to improve the above recited evaluation approach by proposing that for a respective base station, a plurality of measurements are carried out in cooperation with a receiver for a predetermined plurality of distances and directions. The determined measurements are modeled as a scaled contour shape having minimum and maximum boundaries and which is capable of being

projected on a mapping system (see column 8, lines 1-14 and various figures including Figure 14). LeBlanc goes on to state that base stations which neighbor a mobile unit are determined and their RF measurements contours are analyzed to further determine where they intersect. Intersections of neighboring base stations contours thereby define an area that describes the position of the mobile unit in terms of minimum and maximum error estimation (see column 8, lines 14-26 and also Figure 26).

In the method disclosed in LeBlanc, the coverage area is first divided into arc segments. For each segment, a plurality of regressions are performed so as to convert actual data into a corresponding plurality of mathematical curve-fit equations, each representing a relationship between a predetermined measurable variable and distance from the base station. For each of the arc segments, the degree of fit of the corresponding mathematical equations may thereafter be determined by comparing each of the equations with actual data. The equations may further be optimized by using a set of heuristic rules to determine which has the best correlation and least standard error for a predetermined portion of each arc segment. The optimized mathematical equations may be combined for each arc segment so as to form the scaled contour shape corresponding to each base station. In addition, an algorithm may be used to optimize the parameters of each regression so as to further improve the degree of fit for greater correlation and minimum standard error. Finally, fuzzy logic techniques may be used to quantize the best RF measurement using a set of fuzzy rules for optimizing the correlation of RF measurements with respect to distance (see column 8, lines 27-65).

LeBlanc goes on to state that if there is a poor correlation between the mathematical equations of an arc segment and the actual data, the base stations and the receiver may be instructed to change their transmission frequencies. Additionally, RF measurements for the base station at the changed frequency for the same predetermined plurality of distances and directions increase the number of variables for analysis (see column 32, lines 1-13).

As set forth in paragraph 3 of the Official Action, claims 1-18 are rejected in view of LeBlanc with citation in LeBlanc directed to column 6, line 63 through column 7, line 18 and column 31, lines 5-14. Applicant's attorney respectfully traverses this rejection.

Specifically, in the LeBlanc reference, the strength of signals transmitted between a receiver and a beacon (base station) are evaluated. There is no indication that the signals are code modulated and accordingly, no correlation procedure is mentioned to be performed <u>between a respective available code and received signals</u> for detecting a signal. These steps are specifically required in claim 1 wherein it states that it is a method for validating detected code modulated signals transmitted by beacons of a positioning system and further that these beacon signals are detected based on a correlation procedure performed between a respective given code for a specific beacon and received beacon signals (see preamble of claim 1). It is these detected beacon signals -where the detection is based on a correlation procedure performed between a respective given code for a specific beacon and received beacon signals- that the steps of claim 1 are directed to, including performing measurements for said detected beacon signals, selecting at least one of said detected beacon signals as a calibration signal, determining at least one allowed range for results of measurements for detected beacon signals other than said calibration signal based on measurements for said detected calibration signal and on an available reference position of said receiver, and rejecting each detection of a beacon signal for which results of performed measurements are outside of an allowed range determined for said measurements.

Furthermore, the present invention is directed to solving the problem that an incorrect beacon signal may be detected in a correlation procedure in situations in which the incorrect beacon signal is much stronger than the correct beacon signal. In other words, a signal may be assumed to originate from a first beacon, while in reality, it originates from a second beacon. The present invention thus relates to the validation of signals <u>before</u> they are made use of for any kind of positioning.

In particular, the above recited problem is solved by the present invention as recited in claim 1 by the steps recited therein; namely, for the detected beacon signals

measurements are performed; at least one of the detected beacon signals is selected a as a calibration signal, at least one allowed range for results of measurements for detected beacon signals other than the calibration signal is determined based on measurements for the detected calibration signal, as well as based on the available reference position of the receiver; and each detection of a beacon signal for which results of performed measurements are outside of an allowed range determined for measurements is rejected.

According to these steps, a range for measurement results for detected code modulated beacon signals is determined based on the measurement results for a selected calibration signal and based on a reference position. If the measurement results for a detected signal lie outside of this range, the signal is rejected.

LeBlanc is not suited to provide any teaching or suggestion of the steps of the present invention performed with respect to code modulated signals transmitted by beacons of a positioning signal, where these beacon signals are detected based on a correlation procedure performed between a respective given code for a specific beacon and the received beacon signals. The reason LeBlanc does not teach or suggest claim 1 is simply because it does not in any way deal with the detection and validation of code modulated signals. A code modulation of the involved signals is not mentioned, nor is the problem of incorrect correlations between a received signal and an available code intimated. Rather, LeBlanc deals with a completely different problem; namely, enabling an association of signal strength of signals transmitted between a base station and a mobile unit to a corresponding distance of the mobile unit to the base station. In order to achieve this result, LeBlanc discloses a plurality of areas defined by mathematical equations such that if a mobile unit exchanges signals of a certain strength with a base station, the mathematical equations provide the area in which the mobile unit can be assumed to be located. It is not disclosed or suggested in LeBlanc that signals received by the mobile unit are rejected because related measurement values lie outside of some defined range as required by claim 1 where the range is defined in the manner as set forth in the steps of claim 1.

Furthermore, for defining the plurality of areas, the base station in LeBlanc exchanges signals with a receiver at different locations. All signals are thereby considered valid; that is, the signals are all exchanged between a known base station and a known receiver. It is only suggested in LeBlanc that additional measurements may be performed at another transmission frequency, if the first measurements results in a poor correlation between all of the mathematical equations and the actual data, so that an increased number of variables can be considered.

Thus, in general, LeBlanc relates to achieving a better correlation between measurement values and distance, not to the correlation between a received code modulated signal and an available code for a certain beacon.

For all of these reasons, claim 1 is believed to be neither anticipated nor suggested by LeBlanc.

For similar reasons, independent receiver claim 10, independent device claim 14, and independent positioning system claim 16 are neither anticipated nor suggested by LeBlanc. Since claims 1, 10, 14 and 16 are believed to be neither anticipated nor suggested by LeBlanc, it is respectfully submitted that claims 2-9, all of which ultimately depend from claim 1, claims 11-13, 17 and 18, all of which ultimately depend from independent claim 10, and claim 15 which depends from independent claim 14, are further distinguished over LeBlanc.

The Official Action at paragraph 3, goes on to reject claims 1-18 as anticipated in view of Chambers, citing page 3, line 6+ and Figures 5, 6, 9, 15 and 16. Chambers is directed to an improvement in satellite position fixing and discloses a satellite position fixing system where an earth station communicates with a satellite which, in turn, communicates with selectable ones out of a plurality of user terminals whose position, on the surface of the earth, is measured. The accuracy of measurement of the position of the satellite is improved by using all of the user terminals as further triangulation points, the improved position being incorporated in further user terminal position determinations, and so on, to create a cumulative improvement (see abstract thereof).

In particular, in Chambers, it is proposed that for a re-estimation of the position of a satellite, a weighting function is employed which gives greater favor to those measurements of position of a terminal which contribute the most to improving the accuracy of estimation of the instant position of the satellite. It is stated that in any preferred embodiment, this feature provides that terminal position measurements where there is a great error in measurement of the terminal position or where there is great disadvantage in the geometry because the terminal is badly placed relative to a satellite, are given a small weighting and significance in working out the position of the satellite, whereas terminal position measurements with the opposite property are given a greater significance.

It is therefore respectfully submitted that Chambers does not deal with the detection of correct beacon signals. The Chambers reference only proposes to weight measurements of position differently. Thus, no signals are rejected in a validation procedure because such signals might not originate from the beacon from which they are expected to originate based on a correlation procedure. Therefore, Chambers does not anticipate claim 1 of the present invention.

Furthermore, Chambers does not even weight measurements of beacon signals, but rather measurements of positions. It is therefore respectfully submitted that claim 1 is not anticipated by Chambers nor suggested by Chambers since the method of the present invention is directed to validating detected code modulated signals transmitted by beacons of a positioning system and received by a receiver of the positioning system where the beacon signals are detected based on a correlation procedure performed between a respective given code for a specific beacon and received beacon signals. Furthermore, the steps of determining at least one allowed range for results of measurements for detected beacon signals other than a calibration signal based on measurements of the detected calibration signal and on an available reference position of the receiver and the rejecting of each detection of a beacon signal for which results of performed measurements are outside of an allowed range determined for said measurements, is further neither disclosed or suggested by Chambers.

For similar reasons, independent receiver claim 10, independent device claim 14, and independent positioning claim 16 are believed to be neither anticipated nor suggested by Chambers.

As a result, it is respectfully submitted that the claims dependent to independent method claims 1, 10 and 14 are further distinguished over Chambers.

In view of the foregoing, it is respectfully submitted that the claims of the present invention overcome the objection raised at paragraph 1 of the Official Action and that all of the claims of the present application are neither anticipated nor suggested by the cited art. Early allowance of the present application is thereby earnestly solicited.

The undersigned respectfully submits that no fee is due for filing this Amendment. The Commissioner is hereby authorized to charge to deposit account 23-0442 any fee deficiency required to submit this paper.

Respectfully submitted,

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